

PUBLIC BUILDINGS.

JUNE 21, 1842.

Read, and laid upon the table.

Mr. BOARDMAN, from the Committee on the Public Buildings and Grounds, to which the subject had been referred, submitted the following

REPORT:

The Committee on the Public Buildings and Grounds, in discharge of the duty assigned them by the rules of the House, report the results of their deliberations regarding certain objects intrusted to their supervision. They have carefully scrutinized and reduced the estimates submitted by the Commissioner of Public Buildings. The general appropriation bill, already passed, contains several items inserted at the instance of this committee, applicable to the same public establishments as the appropriations herewith recommended. It may be proper, therefore, to advert to the fact that but a small portion of the sums asked by the Departments and the Commissioner was either recommended by the committee or granted by the House. The condition of the public Treasury, and the state of feeling throughout the community, induced by the prostrate condition of the productive labor of the country, require economy in the public expenditures. The communication from the Treasury Department, accompanying this report, presents the urgent wants of that Department for further accommodations for its officers and archives, and asks an appropriation to commence the erection of the south wing of the Treasury building. The committee fully believe that additional rooms are needed for the use of that Department. It is said, also, that not only the perfection and symmetry of the original design of the Treasury building require the erection of the south wing, but that the security of the archives of the main building would be much increased by it, if, indeed, it be not indispensable for that purpose. The estimate laid before the committee was \$153,000, of which \$100,000 were intended to commence the south wing. The committee recommended only \$40,375, a large portion of which was due for work already done; the residue was necessary to complete the erections already made. They are under the impression that, without going on with the proposed wing, sufficient accommodations for the present can be provided in the building. There are in the basement of it twenty-nine rooms, of easy access, and convenient size and proportions, finished with ornamented ceilings, panel doors and plate glass windows, in mahogany frames, which are now mostly empty and useless, from their dampness and want of ventilation. It would be an unprofitable speculation now to discuss the propriety of the

location, arrangement, or material of that imposing building. It is as yet unfinished, and has already cost the Government \$650,000. The edifice contains convenient accommodations for most of the officers of the Department who now occupy them. More room is really wanted, and wanted immediately. To erect the south wing according to the original plan will cost, according to the estimate of the architect, \$265,000, and at least two years must elapse before it could be occupied. The committee believe that the basement rooms can be prepared for safe, convenient, and agreeable occupation in less than six months, and for something less than \$20,000. Had the building been properly located and properly built, this expense of time and money would have been saved. Still, wise economy does, in the present state of things, require an additional expenditure, to prepare these rooms for use. To accomplish this, it will be necessary to enlarge and lower the drain under the building, to sink the area in the court below the floor of the rooms, to lay wooden floors in them, and to provide a safe, steady, and abundant supply of heat, by means of hot water flues. It is ascertained that a contract for these works can now be made, with a responsible architect, upon favorable terms; conditioned that three-fourths of the contract price shall be retained by the Government, until the Secretary of the Treasury shall be satisfied that the work is well done, according to the contract, and that the rooms are rendered by it perfectly safe and comfortable for occupation as offices, and for the deposit of books and papers. Unless some such provision be made, the books and papers now there, and others which the necessity of the case will accumulate there, will be entirely ruined in a very short time. It is said that there is an impression prevailing, among some of the officers and clerks of the Department, that these rooms cannot be made fit for their use. The committee see little or no difference between these and the very common basement rooms in all our large cities, which are in constant use for all domestic purposes, although much further below the surface of the earth than these. The accommodations for the clerks in the public offices are incomparably superior to those provided for the same class of public servants in London or Paris.

The General Post Office building is a most convenient and substantial edifice; it was built by contract, in an unusually short space of time, of an excellent material, and will be completed within the original estimates. It covers all the ground owned by the Government in the square in which it is situated. The committee are of opinion that the other land and buildings on that square should be purchased at once for the use of the Government. It has been ascertained that a title can be had to them now, at a fair price, probably less than will be demanded a few years hence. Those premises are quite necessary for the comfortable occupation and safety of the new edifice, which is only separated by a six-foot alley from the adjoining private buildings, which it is proposed to purchase. The increasing business of the Department will soon require additional accommodations; and even now, many of those buildings could be used by the Department, much to the economy and advancement of the public service. It would provide a location for the city post office, as convenient and much more economical than the present. It will be observed, also, that these lots and buildings lie between the General Post Office and the building and grounds of the Patent Office. This purchase would open the whole to the control of the Government. For these and other reasons contained in the annexed letter

from the Postmaster General to the chairman of the committee, an appropriation of \$53,317 50 is recommended, to be expended under the direction of the Postmaster General, in the purchase of those lots and buildings.

The military departments of the Government have often pressed upon the consideration of Congress the inconvenience they suffer for want of room, for the proper transaction of the public business, as well as for the safe keeping of the very valuable papers belonging to those departments. The Secretary of War, Mr. Poinsett, in his annual report to the President, and accompanying the message at the commencement of the second session of the 26th Congress, says: "I cannot forbear bringing to your notice the exposed condition of the important archives of this Department. Many of them are kept in small buildings, at an inconvenient distance from the War Office, and surrounded by combustible materials. A plain fire-proof building, capable of containing all these detached offices, might be constructed for a sum, the interest on which would not exceed the amount now required for paying the rents of those now occupied for the purpose."

It appears that there are now forty-three rooms, exclusive of the necessary appurtenant offices, hired of individuals, at an annual rent of \$3,000, for the accommodation of the different bureaux in the War Department, to wit: the Corps of Engineers, the Topographical Engineers, the Paymaster General, the Commissary General of Subsistence, the Ordnance, the Surgeon General, the District Quartermaster, and the Pension and Bounty Land Offices. The models, instruments, books, and papers, belonging to these bureaux, are exceedingly valuable, and, if destroyed by fire, could not be replaced, or only at a great expense of time and treasure. The committee are of opinion that provision should be made, immediately, for an additional fire-proof building. They are, however, not yet in possession of sufficient information to recommend an appropriation for its erection. The state of the Treasury and the experience of the Government in such matters enjoin the necessity of cautious proceedings. The elevation, plan, specifications, and estimates, ought to be prepared and carefully examined before the erection is commenced. For this purpose, the committee herewith submit a resolution on that subject, and ask the attention of the House to the accompanying communication from the Secretaries of the War and Navy Departments, in proof of the propriety of the measure.

In obedience to a resolution of the House, directing this committee to inquire as to the practicability of ventilating the Hall of Representatives upon the plan recently adopted for the Houses of Parliament in England, and, if deemed practicable, to report how the same may be adapted to this Hall, the committee report that the new building for the English Parliament is now in the process of erection. They understand, however, that Parliament, for the purpose of warming and ventilating their chambers, have adopted the plan of generating heated air by means of an immense number of hot water pipes beneath the floor, and admitting the air through a vast number of small orifices in the floor, beneath the seats of the members. Ventilation is effected by means of an air chamber above, from which the vitiated air is withdrawn by an air shaft connected with furnaces above for effecting a draught. The expense of the plan is stated to be £90,000. This plan could doubtless be applied to this Hall. It would, however, require important alterations in the fixtures of the Hall, and greater expenditure of money

than the House would probably be willing just now to make. The contents of the new House of Commons is estimated at 120,000 cubic feet. This Hall is much larger, and, with the galleries, contains 300,290 cubic feet. The improvements of modern times in the construction and warming of buildings has enforced the necessity of an increased attention to the subject of ventilation. The advancement in medical science has illustrated the immediate and inevitable connexion between the action of the respiratory organs of the human body by the lungs, and the insensible perspiration from the surface, by the skin, with the general health and vigorous exercise of the bodily and mental powers. The lassitude and depression which invariably succeed a prolonged session, in a crowded apartment or a confined room, has probably brought this truth within the experience and personal knowledge of every member of this House. Even in this Hall, after a session of an hour or two, the difference between the air at the centre and at the extreme parts of the Hall, particularly in the winter, is manifest, upon the slightest observation. The consequence is, that a member, instead of being enabled to devote his best energies to the calm deliberation and discussion of the public weal, finds his mental faculties are exhausted and his bodily powers wearied, producing always impatience and irritation, and sometimes disease and death. Some of the distinguished men of our country have fallen in death at this Capitol during an intellectual effort, and physiologists have attributed the shocking occurrence, in a great degree, to excessive exertion in a confined atmosphere. It appears, from the registry of an extensive hospital in Dublin, that, by means of a thorough ventilation, the proportion of deaths per year, among the same description of patients, was reduced from one in six to one in twenty.

The superficies of the air vessels of the lungs is estimated at 15 feet, and an adult respires, at each breathing, about 40 cubic inches. Respired air, according to Combe, has lost 8 per cent. of its oxygen, which is replaced by 8 per cent. of carbonic acid gas. The vapor discharged by the lungs is 6 grains per minute, $1\frac{1}{2}$ lb., troy, in 24 hours. Insensible perspiration throws off from 9 to 26 grains per minute, and, taking 18 grains as a fair average, it equals $4\frac{1}{2}$ lbs., troy, in 24 hours, for every adult person. Sanctorius, an eminent physician, from a series of the most tedious and remarkable experiments, came to the conclusion that five out of eight pounds of substance taken into the system passed out of it again by insensible exhalation, leaving only three pounds to pass off by the bowels and kidneys. Lavoisier and Seguin afterwards distinguished between cutaneous and pulmonary exhalations. They ascertained, by experiment, that in a healthy, vigorous adult, the quantity of insensible perspiration from the lungs and skin, together, amounted to 5 lbs. per day, and that of this the cutaneous exhalation constituted two-thirds. Although there is some difference of opinion as to the precise amount of perspiration, most observers agree that the insensible cutaneous exhalation is more abundant than the united excretions of both bowels and kidneys during twenty-four hours. That respiration in a crowded room is oppressive is well known, and most persons have experienced the offensive effluvia of a sick room; and yet the most searching chemical analysis of the air will not detect any difference between pure atmosphere and that of a room with persons in a highly infectious disease. The dreadful effects of decayed vegetable matter, of marsh miasma, and of the malaria of the Pontine marshes, are well known; and yet modern chemistry, with all its wonderful power, cannot detect the subtle poison.

Respiration deprives air of a part of its oxygen, and replaces it with carbonic acid gas. It is said that expired air from lungs emptied by forced expiration will generally extinguish a candle. Perspiration, also, which is a direct product of the vital process, has also a powerful agency in vitiating the air around us. It is believed that, by means of the two processes, at least 3,600 cubic feet of air is deteriorated by every individual in twenty-four hours. This estimate gives 900 feet for each individual during a session of six hours, and 225,000 cubic feet for 250 persons in the same time. It is therefore important that such a system of ventilation should be employed as will withdraw that amount of vitiated air, and substitute at least the same amount of pure air during an ordinary session of the House. This necessity is greatly increased by the dust raised by a division of the House by tellers, as well as by the means now used to light the House during a night session. The candles placed upon the desks consume the oxygen of the air on about the level of the face; the currents of air prevent the perfect combustion of the candle; much smoke is thus given out, and, with the carbonic acid gas generated by the combustion, is discharged upon exactly the level to be inhaled by the lungs.

As science is unable to detect, much less to remove, the poisonous quality of a vitiated atmosphere, the only resource is to remove the whole, and replace it by pure air from without. The causes which vitiate the air at the same time generally raise its temperature; and much of it, in consequence of the well-known laws of heat, rises and escapes through the cupola in the dome over the centre of the Hall. Independent of the increased temperature, the air in a crowded room becomes heavier by the consequent deterioration, and sinks to the floor and lower parts of the Hall, where it remains until removed by violent agitation or a draught through the room. It is believed that an aperture of proper dimensions through the lowest part of the floor, connected with a furnace by means of an air shaft, and properly guarded against reaction, will remove the principal portion of vitiated air which the opening in the dome will not discharge.

The four fireplaces in the hall, intended for the purpose of warming it, are of great service in ventilation, as a little observation in their immediate neighborhood will show. There are, besides, two furnaces beneath the Hall, from which heated air is introduced into it, through orifices of one hundred and thirty-eight superficial inches,* and the floor is warmed by heated air passages beneath. For the purposes of ventilation, it is necessary to have command of a much larger quantity of pure air, heated to a proper degree, to be introduced at a lower temperature, and prepared with proper infusion of moisture by means of reservoirs within the furnace. As at present arranged, the provision for pure air, and to free it from dust and other impurities, is very imperfect. It is introduced through holes near the floors of the passages or of the coal room, loaded with dust of various descriptions, and brought immediately in contact with a metallic surface heated to a temperature high enough to injure its quality, and adulterate it by the combustion of some of the impurities with which it is loaded. In this state it rises into the Hall, increasing the temperature of the air without much improving its quality. Its great heat forces it immediately aloft, without allowing its admixture with the air of the Hall. The great reliance for ventilation hitherto has been upon the opening in the dome. The ten-

* Less than one superficial foot. The plan proposed by the committee provides openings amounting to about fifty feet—fifty times as large as those now in use—and, if properly arranged, will contribute much to the comfort of the House, by the introduction of cool air in hot weather.

dency of heated air to escape through it, assisted by the heated air from the fireplaces and the furnaces, and the rush of cold air through the doors and windows. Currents of pure air either cold or hot, will pass through a mass of vitiated air without readily mixing with it, and it requires a very skillful adjustment of vertical ventilators, so as to be always effective, and at the same time to allow the current produced by increased temperature to overcome the superior weight of the outer air; and, although accurately adjusted, a change of temperature within or without may reverse the current, and deluge the House with cold air. Dr. Reid's plan, for the House of Commons, provides a remedy for this, by means of an air chamber above, in which the vitiated air is received from the Hall, and withdrawn thence by means of an air shaft communicating with a furnace. The principle might possibly be applied to this Hall, by perforations in the dome, and conducting the vitiated air thence to a furnace to be erected on a level with the spring of the arch of the dome, in a fireproof room already there; the furnace to be provided with a cowl, and at such an elevation of the chimney as to secure a certain and constant draught. The committee believe, however, that a sufficient ventilation can be produced, without a resort to this plan; at least, they do not advise its adoption until the other means herein recommended have proved inefficient. It is not to be expected that complete success in any plan of ventilation will be attended with any immediate brilliancy. The difference between a pure and a vitiated atmosphere is ordinarily undiscoverable by the senses, except when presented in strong and sudden contrast; still the benefit will be felt and appreciated by the House, and particularly by those members whose health is infirm.

The committee recommend that the Commissioner of Public Buildings be authorized to contract with John Skirving, provided it can be done upon proper terms, for the removal of the furnaces now used to warm the Hall, and to construct three new ones on the floor below the level of the crypt, for the more effectual warming and ventilating the Hall and passages connected with it generally, upon the plan of those now in use at the General Post Office; also, for the construction of similar fixtures for the introduction of coal from without. The two furnaces now in use have been repeatedly altered and repaired, and must be removed soon; they were erected more than twenty years ago, and without the light of modern days, and it was only after repeated experiments that they were made useful. By the application of science to the arts, furnaces are now so constructed as to be entirely under control; to afford a much greater supply of heat from the same fuel, and, by means of a secondary as well as primary operation, to contribute essentially to ventilation. By removing the furnaces to the floor below the one now occupied by them, means will be provided for warming the rooms and passages on which they now are, and thus removing a serious inconvenience, arising from the chilling dampness which always attends a continuance of wet weather.

The committee, therefore, recommend the following appropriations, viz:

For taking down the old and erecting new furnaces beneath the Hall of the House of Representatives, nine thousand six hundred and thirty-four dollars.

For the purchase of land, &c., adjoining the General Post Office, fifty-three thousand three hundred and seventeen dollars and fifty cents.

For warming and ventilating twenty-nine rooms and four corridors in the basement of the Treasury building, nineteen thousand six hundred and twenty-five dollars and twenty-four cents.

Resolved, That the Secretaries of War and of the Navy be directed to report to this House, at the present or the next session, an elevation, plan, specification, and estimates, for a building to be erected on the south end of the enclosure of the southwest executive building, for the further accommodation of the offices and bureaus connected with those two Departments, to be three stories high with wings extending north, towards the Navy Department, according to the plan suggested in their letter to the chairman of the Committee on Public Buildings.

POST OFFICE DEPARTMENT,

February 16, 1842.

SIR: I have been honored with your communication of the 1st February, enclosing a copy of the resolution of the Committee on Public Buildings, desiring to be informed of the condition of the public building now occupied by this Department, and requesting to know whether any further room is required for the use of this Department. Presuming your resolution does not refer itself to the subject of completing the edifice now occupied, as that more appropriately belongs to the Commissioner of Public Buildings, I shall confine my remarks to the condition of the interior of the building, and the necessity of increasing the grounds around the Post Office building.

In order to escape the danger from fire, to which the public records were exposed in the buildings recently occupied, I removed them to the new building in its unfinished and unfurnished state, using the old furniture in its worn out condition. The rooms were made as comfortable as it was practicable to make them, and some expense was incurred. The persons furnishing indispensable articles agreed to await an appropriation by Congress. The amount of these expenditures I will cause to be furnished you, so soon as I can obtain the bills.

The floors of the building being of brick and cement, it becomes absolutely necessary that they should be carpeted with a strong substantial article. There are needed some other articles of furniture, an estimate of which will be made out and submitted to you so soon as it can be done.

In the building, I think, there are rooms enough for the present accommodation of the clerks and other officers now engaged in this Department, and in the Auditor's office attached to the General Post Office. It should be remembered, however, that the business of this office, and consequently its force, are destined to increase with the increase and growth of our population; and the time may not be very distant when more room than is now found in the new edifice, at present occupied, will be required.

It appears that, in the arrangement and plan of the building, no provision is made for the accommodation of the city post office. That office is now kept in a rented building, not very well adapted to such use, and in a very inconvenient part of the city. The city post office, whether economy or convenience be consulted, should be located near the General Post Office. This cannot be done, for the want of a building suitable, or the ground upon which to build one.

As your committee have taken the trouble to visit the Post Office building, they are informed, by personal observation of the fact, that it covers all the ground owned by the Government in the square on which it is sit-

uated. I need not here point out the inconveniences, to say nothing of the nuisances to which the clerks must be exposed, without an enlargement of the Post Office lot. This enlargement cannot take place, unless the Government will purchase the adjacent lots owned by individuals.

With this view, I have fixed with the owners of these lots the prices at which they will sell, provided Congress appropriates the money at its present session. A purchase of the whole or a part of the square will be necessary, in order to rid the Post Office building of the evils arising from an alley and its *tenements*, which must ever annoy the inmates of the office, so long as they remain.

The prices fixed I think are high, but, under all the circumstances, as low as the General Government has a right to expect to purchase property of the importance of this to the public service.

A portion of the buildings now on this square, if purchased, could be converted into a good office for the use of the city post office, and thereby save to the Government the annual rent of that building, which is \$750 per annum. The distance between the city office and the General Post Office, causing an annual charge equal to \$500, which would be saved by having them so near each other that the mails could be sent from one to the other without the use of a horse and carryall, and a man specially employed for that business.

Under all the circumstances, I am constrained, by a regard for the interest and convenience of the public service, for the comfort if not for the health of those employed in this office, earnestly to press upon the consideration of the committee the propriety of purchasing this property at this time.

Very respectfully, your obedient servant,

C. A. WICKLIFFE.

HON. CHAIRMAN *Committee on Public Buildings.*

WASHINGTON, March 2, 1842.

SIR: In answer to the resolution of the Committee on the Public Buildings, communicated by your letter of the 31st of January, we have the honor to enclose, herewith, a report from the Colonel of Engineers and the Colonel of Topographical Engineers, respecting the buildings necessary for the accommodation of the War and Navy Departments. The great inconvenience to which the War Department is subjected, and the great danger to which a large portion of its most valuable records and papers are exposed, have already been presented to the consideration of Congress in the two last annual reports of the former and present Secretaries of War. The buildings occupied by the bureaus specified in the accompanying report are hired at an annual expense of \$3,000.

The Navy Department is very much cramped by having eleven rooms in the building appropriated for its use occupied by the Second Comptroller and the Third Auditor of the Treasury. The remaining rooms are crowded with persons and papers to an extent that seriously impedes the transaction of the public business. Of the absolute necessity, therefore, of additional accommodations for both Departments, there cannot be a doubt.

Upon mature consideration of various plans which have been suggested, the undersigned decidedly prefer that which contemplates the erection of

two additional buildings, similar to those now occupied by their respective Departments, and on the same lot of ground but to be three stories in height. In their opinion, there is not sufficient room on that lot north of the wall which encloses the premises for the erection of three buildings, without crowding them too near the present edifices; and having some doubt of the propriety of extending the range of buildings south of the present wall, they are of opinion that, for the present, while it would be more economical, it would answer the purpose to erect but one building on the south end of the enclosure, three stories high, and with wings extending at right angles from it, towards the house occupied by the Navy Department, so far as shall be necessary to furnish the requisite number of rooms. A free circulation of air would be secured, and the hazard of fire, from a too close proximity of the buildings, would be avoided. The expense of such a building would probably be somewhat less than the two, of three stories each, before mentioned.

Convinced that one or the other of these plans must be adopted, to enable the officers of the Department to transact the business of the Government, and to secure the public archives, which are now so imminently endangered, we would most respectfully but most earnestly urge an adequate appropriation to be made as promptly as possible, so that preparations may be immediately made to commence work, and gain as much as possible of the present year, in the hope of completing it during the next season.

We are, very respectfully, your obedient servants,

J. C. SPENCER.

A. P. UPSHUR.

Hon. W. W. BOARDMAN,

Chairman Committee on Public Buildings, Ho. of Reps.

TREASURY DEPARTMENT, June 20, 1842.

SIR: I have the honor to return to you the papers you left with me some time since, in relation to the Treasury building, with an abstract, stating the number of additional rooms wanted for the accommodation of the officers of the Treasury.

I also enclose you additional reports on the subject, from the Register and Comptroller.

From the documents referred to, it will be perceived that twenty-five additional rooms are necessary for the convenient transaction of the public business.

It will be for Congress to decide whether an additional wing to the Treasury building shall be erected, or whether the rooms in the basement of the present building can be so fitted up and prepared as to be safe and convenient for the purposes required.

I am, very respectfully, your obedient servant,

W. FORWARD,

Secretary of the Treasury.

Hon. W. W. BOARDMAN,

Chairman Committee on Public Buildings, Ho. of Reps.

Additional rooms required for the proper accommodation of the officers of the Treasury Department, who at present occupy the Southeast Executive Building.

Secretary of the Treasury	-	-	-	-	2 rooms.
First Comptroller	-	-	-	-	6 "
Solicitor	-	-	-	-	1 "
Register	-	-	-	-	4 "
Commissioner General Land Office, upper story of new wing,					
equal to -	-	-	-	-	12 "
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Total	-	-	-	-	25 "
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TREASURY DEPARTMENT, June, 1842.

W. FOWARD,

Secretary of the Treasury

Hon. W. B. Beckwith, Chairman Committee on Public Buildings, Ho. of Reps.